

1 A. TITLE OF THE INVENTION

2 BREADS COMPRISING EMULSIFIED LIQUID SHORTENING COMPOSITIONS
3 COMPRISING DIETARY FIBER GEL, WATER AND LIPID.

4 B. CROSS-REFERENCE TO RELATED APPLICATIONS

5 Not Applicable

6 C. STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

7 The present invention does not involve any form of federally sponsored research or
8 development.

9 D. BACKGROUND OF THE INVENTION

10 The present invention relates to breads comprising emulsified liquid shortening compositions
11 comprising dietary fiber gel, water and lipid. Recent media attention to the global problem of
12 obesity demonstrates a need for greater availability of foods with low caloric and fat content. This is
13 especially true for foods that typically have high fat and caloric content, such as breads.

14 Breads typically comprise some fat. Other ingredients can vary according to the type of
15 bread and the recipe followed, but typically, breads are high in both fat and caloric content. The
16 term "breads", as used in this document, is intended to include rolls and pancakes, and pancake
17 mixes.

18 In recent years, some companies have begun to offer reduced fat breads. This variety of
19 bread, however, often fails to retain the desirable taste and texture of breads comprising higher fat
20 contents.

21 The absence of a means to reduce the fat and caloric content of breads while still producing a
22 desirably flavored and textured bread presents an unmet need in today's food industry.

23 E. BRIEF SUMMARY OF THE INVENTION

24 It is an object of the present invention to provide a unique composition of matter embodied
25 by low-calorie and low-fat breads. This reduction in caloric and fat content answers an unmet need

26 in the food industry to provide the consuming public with a healthier, higher fiber alternative to
27 traditional types of breads that typically are inherently fattening. It is another object of the present
28 invention to provide breads that have been fortified with insoluble fiber and other functional foods.

29 Dietary fiber gels for calorie reduced foods hold the key to meeting this need. Dietary fiber
30 gels for calorie reduced foods are fully described in U.S. Patent number 5,766,662 (the '662 patent).
31 These dietary fiber gels comprise insoluble dietary fibers consisting of morphologically disintegrated
32 cellular structures, and are characterized by their ability to retain large amounts of water.
33 Additionally, these dietary fiber gels are characterized by their high viscosity at low solid levels.
34 Other insoluble fibers derived from cereals, grains and legumes consist of morphologically intact
35 cellular structures, and thus impart a gritty texture to the foods in which they are contained. The
36 dietary fiber gels disclosed in the '662 patent, however, consist of morphologically disintegrated
37 cellular structures and thus impart a smoother texture than other insoluble fiber formulations.

38 More specifically, the present invention utilizes emulsified mixtures of the dietary fiber gels
39 disclosed in the '662 patent, the emulsified mixtures further comprising, at a minimum, water and
40 lipid. These emulsified mixtures are fully described in and are the subject of United States patent
41 application number 10/669731 filed 09/24/2003. These emulsified mixtures, or "emulsified liquid
42 shortening compositions comprising dietary fiber gel, water and lipid", can further comprise
43 functional foods such as high omega three and omega six oils and pure omega three and omega six
44 fatty acids, medium chain triglyceride, beta carotene, calcium estearate, vitamin E, bioflavonoids,
45 fagopyritrol, polyphenolic antioxidants of vegetable origin, lycopene, luteine and soluble fiber, for
46 example Beta-Glucan derived from yeast, and other soluble fibers derived from grain, flax seed, and
47 other vegetable and fruit fiber sources, and any combination thereof. Hence, in addition to reducing
48 fat and caloric content of breads, further health benefits can be achieved by replacing a portion of fat
49 with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid.

According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in breads with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. This replacement of fat does not adversely affect either the taste or texture of the breads. In fact, in the case of bread marketed to consumers as toast, croutons and bread chips, the fiber gel added according to the present invention results in lower breakage occurring in the final packaging by adding tensile strength to the bread. The result is that fat and caloric content of breads can be manipulated with minimal adverse effect on taste and texture, and as stated above, additional health benefits can be achieved through consumption of breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid when functional foods are included in the formulations.

Further objects, advantages and features of the present invention will present themselves in the following detailed description.

F. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

This invention is directed to breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in breads with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid (hereinafter "emulsified liquid shortening"). This replacement of fat does not adversely affect either the taste or texture of the breads. The result is that fat and caloric content of breads can be manipulated with minimal effect on taste and texture.

Alternatively, the breads can be provided in the form of bread mixes with the intention that a consumer can mix and bake them at a convenient, post-purchase time, and bread mixes are considered to be within the scope of this invention. Similarly, breads can also be provided in the form of bread dough with the intention that a consumer can bake them at a convenient, post-

74 purchase time, and bread dough is considered to be within the scope of this invention. As such, for
75 purposes of this document, the term “breads” is defined to include bread mixes and bread dough.

76 Different categories of bread are available to consumers, including conventional breads and
77 pancakes. Conventional breads, for example Italian, French, wheat, multigrain, oat, rye,
78 pumpernickel, white, and the like, can be formulated such that the bread comprises 0.2 percent to 5.0
79 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to
80 deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an
81 essentially identical amount of emulsified liquid shortening. Pancakes, including for example
82 buckwheat, buttermilk and the like, and pancake mixes, can be formulated such that the pancakes,
83 and pancakes made from the pancake mixes, comprise 0.2 percent to 3.5 percent dietary fiber gel
84 solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary
85 fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of
86 emulsified liquid shortening.

87 The result is that fat and caloric content of breads can be manipulated with minimal effect on
88 taste and texture, and as stated above, additional health benefits can be achieved through
89 consumption of breads comprising emulsified liquid shortening compositions comprising dietary
90 fiber gel, water and lipid when functional foods are included in the formulations.